

**DIRECT TESTIMONY OF
ROSE JACKSON
ON BEHALF OF
SOUTH CAROLINA ELECTRIC & GAS COMPANY
DOCKET NO. 2006-5-G**

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION.

A. My name is Rose Jackson, and my business address is 1426 Main Street, Columbia, South Carolina. I am employed by SCANA Services, Inc. ("SCANA Services") as General Manager – Gas Supply & Capacity Management.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND BUSINESS BACKGROUND.

A. I graduated from the University of South Carolina in 1988 with a Bachelor of Science degree in Accounting. Following graduation, I worked for approximately three (3) years as an accountant for a national security services firm. In 1992, I began my employment with SCANA Corporation ("SCANA") as an accountant working directly for SCANA Energy Marketing, Inc. Over the years, I have held varying positions of increasing responsibility including Energy Services Coordinator, where I was responsible for scheduling gas for the Atlanta Gas Light System; project manager for the implementation of an automated gas management system; and manager of operations. In 1998, I became responsible for gas procurement, interstate pipeline and local distribution company scheduling and preparation of gas accounting information. In May 2002, I became manager of operations and gas accounting with SCANA Services where I was responsible for gas scheduling on interstate pipelines and gas accounting for all SCANA

1 subsidiaries. In November 2003, I became Fuels Planning Manager where I
2 assisted all SCANA subsidiaries with strategic planning and special projects
3 associated with natural gas. I held this position until promoted to my current
4 position in December 2005.

5 **Q. HAVE YOU TESTIFIED BEFORE THIS COMMISSION PREVIOUSLY?**

6 A. Yes.

7 **Q. WHAT ARE YOUR DUTIES AS GENERAL MANAGER – GAS SUPPLY &**
8 **CAPACITY MANAGEMENT?**

9 A. In regard to South Carolina Electric & Gas Company (“SCE&G” or the
10 “Company”), I am responsible for gas supply and capacity management functions.
11 Specifically, my responsibilities include the oversight of planning, procurement of
12 supply and capacity, nominations and scheduling, gas cost accounting, state and
13 federal regulatory issues concerning supply and capacity, and asset and risk
14 management.

15 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.**

16 A. The purpose of my direct testimony is two-fold. First, I discuss SCE&G’s
17 portfolio of gas supply. I begin by addressing the various gas supply options
18 available to the Company, and the gas supply options to be implemented by
19 SCE&G in the future. I then discuss the transportation assets that SCE&G plans
20 to use in providing natural gas services to its customers, followed by a review of
21 capacity release. I conclude my discussion on gas supply by reviewing the storage

1 assets that SCE&G will acquire in the future and requesting tariff changes related
2 to gas supply.

3 Second, my testimony addresses risk management in connection with
4 volatile natural gas prices. This portion of my testimony focuses on the benefits and
5 operations of a financial concept known as hedging.

6
7 **I. GAS SUPPLY.**

8
9 **Q. PLEASE EXPLAIN SCE&G'S GAS PURCHASING PRACTICES DURING**
10 **THE PERIOD UNDER REVIEW.**

11 A. During the period under review, SCE&G purchased all of its natural gas
12 supplies from SCPC. All gas purchases made by SCE&G from SCPC were made
13 under SCPC's approved tariff and rate schedules as bundled gas supply and capacity.

14 For payment for its services, SCPC sends SCE&G monthly invoices billing
15 the daily commodity deliveries at each of its delivery points along with its demand
16 charges for contracted transportation capacity. SCE&G also receives a detailed
17 monthly summary of SCPC's commodity gas costs. In summary, during the period
18 under review, SCE&G relied primarily upon SCPC to obtain, transport and deliver to
19 the Company its natural gas supply at tariffed rates approved by the Commission. In
20 the near future, however, SCE&G's reliance upon SCPC for bundled natural gas

1 service will end after SCPC transitions to an interstate pipeline, which at the time of
2 this filing is projected to be November 1, 2006.

3 **Q. PLEASE EXPLAIN SCE&G'S PLANS FOR PURCHASING ITS GAS**
4 **SUPPLIES AFTER SCPC TRANSITIONS TO AN INTERSTATE PIPELINE.**

5 A. After SCPC transitions to an interstate pipeline, it will no longer provide
6 supply or merchant service. Thereafter, SCE&G will purchase all of its natural gas
7 supply directly from gas suppliers. In assuming the obligation to purchase its own
8 gas supplies, SCE&G anticipates relying upon the same procedures, practices, and
9 personnel previously utilized successfully by SCPC for procurement of reliable and
10 reasonably priced natural gas supplies. Further, the Company will use reasonable
11 business efforts to secure reliable supplies of natural gas at or near index prices.

12 **Q. HOW WILL SCE&G REPLACE THE BUNDLED SERVICES PROVIDED**
13 **BY SCPC?**

14 A. There are four gas service options that will be available to SCE&G in the
15 future. The gas service options are: (1) wellhead gas supply; (2) interstate pipeline
16 transportation; (3) underground storage; and (4) liquefied natural gas ("LNG").
17 SCE&G's gas asset portfolio will include each of these service options, and the
18 Company plans to combine these services to meet its firm demand under varying
19 weather conditions at reasonable cost.

1 **Q. PLEASE DESCRIBE THE AVAILABLE INTERSTATE PIPELINE**
2 **TRANSPORTATION OPTION.**

3 A. After SCPC's interstate conversion, SCE&G will also begin purchasing
4 interstate pipeline transportation capacity on both a firm and interruptible basis
5 from the three (3) interstate pipelines that provide service to SCE&G: Southern
6 Natural Gas Company ("Southern"), Transcontinental Gas Pipe Line Corporation
7 ("Transco"), and Carolina Gas Transmission Corporation ("Carolina Gas").

8 Interstate Firm Transportation ("FT") service permits SCE&G access to the
9 interstate pipeline transportation capacity on a priority basis. Interruptible
10 Transportation ("IT") service is only available when pipeline FT customers, such
11 as SCE&G, are not using their FT capacity. IT service is curtailed when FT
12 customers use their capacity. In other words, FT and IT services use the same
13 physical pipeline capacity, with FT service having priority. SCE&G contracts for
14 FT service from the pipelines to assure delivery of natural gas during colder
15 periods when the full transportation capacity of the pipeline is used and when the
16 demand for natural gas service is typically greatest. Upon SCPC's conversion to
17 an interstate pipeline, SCE&G will be allocated 161,143 dekatherms ("Dt") of
18 firm capacity on Southern and 64,652 Dt of firm capacity on Transco. In addition,
19 SCE&G acquired 296,560 Dt of firm capacity on Carolina Gas in order to deliver
20 gas from Transco and Southern and the LNG facilities to SCE&G's system.
21 Exhibit No. __ (RJ-1) provides a summary of the firm transportation contracts by
22 pipeline supplier. In the event that SCE&G has idle firm transportation capacity,

1 the Company may resell this capacity through a mechanism called “capacity
2 release.”

3 **Q. BRIEFLY DESCRIBE CAPACITY RELEASE.**

4 A. After SCE&G has purchased its own firm transportation capacity, it will
5 have the capability to resell all or part of its idle firm transportation capacity to
6 any entity who wants to obtain that capacity. There is no guarantee that there will
7 be a ready market for unused capacity.

8 **Q. PLEASE DESCRIBE CAPACITY RELEASE AVAILABLE UNDER FERC**
9 **PROCEDURES.**

10 A. The capacity release market will permit SCE&G to buy or sell firm interstate
11 pipeline transportation capacity through the interstate pipelines’ electronic bulletin
12 boards (“EBBs”). The capacity release mechanism creates an open, competitive
13 market for selling capacity. Shippers acquiring released capacity are billed by and
14 make payments directly to the interstate pipeline for the capacity released. In the
15 event that SCE&G releases capacity, the interstate pipeline will credit SCE&G’s
16 transportation invoice in the amount of the capacity release payments.

17 SCE&G, pursuant to Commission Order No. 2005-619, will then credit 75%
18 of the net revenue received from such release to the demand charge component of its
19 firm cost-of-gas calculation and will retain 25% outside of regulated revenues as an
20 incentive for effectively remarketing these assets.

1 **Q. WHAT DETERMINES AVAILABLE CAPACITY RELEASE?**

2 A. The availability of capacity release is influenced by many factors such as
3 the weather and market conditions. Because SCE&G's portfolio is assembled to
4 meet the firm demand of its customers, firm supply services will consume more of
5 the portfolio and limit capacity available for capacity release transactions when the
6 weather is colder than normal. If a cold winter were to occur, SCE&G would use
7 essentially all of its firm interstate pipeline capacity. As a result, capacity release
8 credits will be less as those assets are used to serve native load during colder
9 weather.

10 **Q. UNDER WHAT CONDITIONS WILL SCE&G RELEASE CAPACITY?**

11 A. SCE&G may release capacity when it is not required to meet system supply
12 needs. The level of the credits resulting from capacity release depends significantly
13 on the market for, duration of, and conditions placed on released capacity.
14 SCE&G's strategy is to balance the benefits of the revenue contributions from
15 capacity release with SCE&G's need to preserve flexibility and reliability to meet
16 system sales requirements.

17 **Q. DOES SCE&G PLAN TO USE OTHER MEASURES TO OPTIMIZE ITS**
18 **FIRM TRANSPORTATION CAPACITY?**

19 A. Yes. In addition to capacity release, SCE&G will optimize its firm
20 transportation capacity through a process called "segmentation." In certain limited
21 circumstances, segmentation will allow SCE&G to deliver up to twice as much
22 supply on a portion of its firm capacity while paying only one demand charge.

1 Interstate pipelines allow segmentation as long as the delivery point meter has
2 sufficient capacity and gas supply does not cross the same delivery point. For
3 example, SCE&G may use 10,000 Dt of its firm transportation on Carolina Gas to
4 deliver 20,000 Dt of gas supply to the Charleston area. In this example, 10,000 Dt of
5 supply could be delivered from the Gulf Coast and 10,000 Dt of supply could be
6 delivered from the Bushy Park LNG plant to serve the Charleston area using the
7 same 10,000 Dt of transportation capacity secured from Carolina Gas.

8 **Q. PLEASE BRIEFLY DESCRIBE THE UNDERGROUND STORAGE**
9 **OPTION.**

10 A. After purchase, some wellhead gas is stored in underground facilities for
11 future use. Depending upon location, these underground facilities are referred to as
12 either production area storage or market area storage. Gas stored in these
13 underground facilities can be withdrawn and delivered to SCE&G's system during
14 periods of high demand. Additionally, gas can be injected and withdrawn from these
15 facilities in order to "balance" the system on a daily basis.

16 **Q. WHAT INTERSTATE STORAGE ASSETS ARE AVAILABLE TO THE**
17 **COMPANY TO AID IN DELIVERING RELIABLE AND SECURE GAS**
18 **SERVICE TO SCE&G CUSTOMERS AFTER SCPC TRANSITIONS TO**
19 **AN INTERSTATE PIPELINE?**

20 A. As part of SCPC's merger process with SCG Pipeline, Inc., SCE&G was
21 allocated its share of storage capacity. After the merger, the Company will have
22 4,908,830 Dt of storage on Southern's system, with maximum daily withdrawal

1 capability from this storage equaling 99,121 Dt per day at peak storage inventory.

2 On Transco, SCE&G will subscribe to 496,774 Dt per day of storage, with a
3 maximum withdrawal quantity of 8,367 Dt per day at peak storage inventory.

4 Exhibit No. ____ (RJ-2) reflects total storage and withdrawal capacity by pipeline
5 supplier in a table format.

6 **Q. PLEASE DESCRIBE THE LNG FACILITIES AND THEIR CAPACITIES.**

7 A. With SCPC's transition to an interstate pipeline, SCE&G will acquire two
8 LNG facilities from SCPC, one at Bushy Park near Charleston and the other at
9 Salley, in Orangeburg County. Exhibit No. ____ (RJ-3) depicts the Bushy Park
10 facility, which can liquefy and store up to 980,000 Mcf of LNG. Exhibit No. ____
11 (RJ-4) depicts the LNG facility at Salley, which can store up to 900,000 Mcf of
12 trucked-in LNG. LNG must be transported to Salley via truck because Salley has
13 no liquefaction facilities.

14 **Q. AT WHAT VAPORIZATION RATE DOES SCE&G PLAN TO USE THESE**
15 **FACILITIES?**

16 A. The combined storage capability of these facilities allows our system
17 throughput planning to assume a maximum daily withdrawal quantity of 105,000
18 Mcf/day. For example, assuming that storage volumes are at maximum capacity,
19 Bushy Park's inventory would be exhausted in approximately 16 days if operated at
20 a withdrawal rate of 60,000 Mcf/day, and Salley's inventory would be exhausted in
21 approximately 20 days if operated at a withdrawal rate of 45,000 Mcf/day.

1 **Q. WHAT BENEFIT WILL THESE LNG ASSETS PROVIDE THE**
2 **COMPANY?**

3 A. As Mr. Phalen explained in his direct testimony, during the period under
4 review, SCE&G retired its propane air facilities which the Company had
5 previously used to meet the peaking needs of its system. As a transitional measure
6 to meet these peaking needs, SCE&G's gas department secured an additional
7 volume of bundled supply from SCPC, contracted with SCPC for additional
8 intrastate transportation capacity, and entered into a Memorandum of
9 Understanding with the Company's electric department in which the departments
10 agreed to share interstate transportation capacity originally secured to serve the
11 Jasper Generating Station. However, after the Company acquires SCPC's LNG
12 facilities, the Company will no longer be required to rely upon others for its
13 peaking needs as it did during the period under review. Instead, SCE&G will rely
14 primarily upon its newly acquired LNG assets to fulfill the peaking needs of its
15 system and customers in the year ahead.

16 Another benefit realized by acquiring this on-system LNG service is that it
17 significantly adds to the reliability and security of gas supply during unfavorable
18 operating conditions that may occur from time to time. For example, SCE&G's
19 supply of gas could be unexpectedly interrupted because of a hurricane in the
20 Gulf, or because abnormally cold weather creates a spike in demand which in turn
21 causes equipment malfunctions, well freeze-ups, and other operational
22 abnormalities thereby limiting the supply of gas into South Carolina. In these

1 instances, SCE&G could employ the use of its on-system LNG facilities for a
2 limited time to offset or reduce any adverse effects caused by an upstream
3 interruption.

4 Attached hereto as Exhibit No. ____ (RJ-5) is a comparison of SCE&G's
5 firm sales service to its capacity to deliver gas to serve firm demand. This exhibit
6 indicates that the Company will have firm assets sufficient to provide a 4.69%
7 operating reserve with a maximum duration of 16 days.

8 **Q. HOW WILL SCE&G UTILIZE ITS COMBINED INTERSTATE**
9 **STORAGE AND INTRASTATE LNG TO ASSURE RELIABLE AND**
10 **SECURE GAS SERVICE?**

11 A. There are two dimensions to storage services: peak capability and duration.
12 SCE&G uses its storage to address both of these dimensions. Certain storage
13 services are geared toward providing large withdrawal quantities to meet spikes in
14 demand on very cold days but only for a short period of time. The storage
15 services in SCE&G's portfolio of this type will include Transco LNG Storage
16 Service, Transco Eminence Storage Service ("ESS") and both the Bushy Park and
17 Salley LNG facilities located on SCE&G's system. Accordingly, these storage
18 services will provide SCE&G with peak capability.

19 Other storage services are geared toward meeting demand over more of the
20 winter period and not only on the coldest days. The storage services in SCE&G's
21 portfolio of this type will include Transco Washington Storage Service ("WSS"),
22 Transco General Storage Service ("GSS") and Southern's Contract Storage

1 Service ("CSS"). Therefore, these storage services will provide SCE&G with
2 duration capability. Through the active management of these assets, SCE&G is
3 able to meet the needs of its firm customers on the coldest days of the winter and
4 over the entire winter.

5 **Q. PLEASE DESCRIBE THE CONSIDERATIONS EVALUATED BY SCE&G**
6 **IN ASSEMBLING ITS GAS SUPPLY PORTFOLIO.**

7 A. The Company's evaluations for assembling its gas supply portfolio include
8 reviewing the gas supply, storage, transportation, and other assets already under
9 contract. Other considerations include such things as geographical delivery
10 limitations, maximum volumes, storage ratchets, and the cost of the various services.
11 SCE&G then compares the resources against the firm demand under varying weather
12 conditions. Finally, the Company determines whether additional resources are
13 required to serve the firm demand under varying weather conditions.

14 **Q. PLEASE DESCRIBE THE PROPOSED USE OF EACH OF THESE**
15 **VARIOUS SERVICES WITHIN THE PORTFOLIO.**

16 A. SCE&G anticipates placing different levels of reliance on its various supply
17 sources based on the time of year in question. Each management decision related
18 to the purchase of gas supply is based upon the best information available to
19 SCE&G at the time its decisions are executed. During the winter heating season,
20 the Company plans to use its wellhead gas as its principal supply, followed by the
21 use of its natural gas supply stored in underground storage facilities. Lastly,

1 SCE&G anticipates using its on-system LNG to meet the last increment of demand
2 on the coldest days or hours of the year.

3 As the winter progresses, this order of usage may be modified. For
4 example, if South Carolina experiences mild weather during the early part of the
5 winter and storage inventories are relatively high, then underground storage and
6 LNG withdrawals may be used instead of wellhead supply.

7 **Q. ARE THERE ANY CHANGES THAT SCE&G PROPOSES TO MAKE TO**
8 **ITS TARIFF?**

9 A. Yes. There are several important additions that SCE&G proposes to make
10 to its Tariff – all of which are included within Exhibit No. ____ (RJ-6).

11 **Q. PLEASE EXPLAIN THE PROPOSED REVISION AUTHORIZING THE**
12 **COMPANY TO ONLY CURTAIL SOME CUSTOMERS IN A CERTAIN**
13 **CURTAILMENT CATEGORY RATHER THAN ALL CUSTOMERS IN**
14 **THAT CATEGORY.**

15 A. SCE&G's Commission-approved Tariff as well as its approved Service
16 Agreements with interruptible industrial customers ("Service Agreements") permit
17 the Company to limit or curtail gas service to its customers under certain
18 circumstances. Under the curtailment of service provision included in its Tariff
19 and in its Service Agreements, SCE&G is limited to curtailing gas service by
20 customer category according to priority-of-service categories. At the time the
21 Commission approved SCE&G's Tariff at Section VII(B), the curtailment
22 provisions contained therein and included within the Service Agreements were

1 based upon the curtailment provisions set forth in SCPC's tariff which also limited
2 curtailments to a customer curtailment category. SCPC's tariff, however, will no
3 longer be effective after it converts to interstate jurisdiction. With the merger on
4 the horizon, Carolina Gas has issued a tariff which includes curtailment provisions
5 allowing for the curtailment of specific geographical areas. In light of the
6 curtailment provisions of Carolina Gas, SCE&G seeks to revise its curtailment
7 provisions so they are consistent with the tariff of Carolina Gas.

8 Moreover, a second reason exists for revising SCE&G's curtailment
9 provisions. In the event that it becomes necessary to curtail gas service, SCE&G
10 must curtail service to an entire customer curtailment category under the existing
11 Tariff and Service Agreements even if sufficient gas supplies are available to serve
12 a portion of that category of customers. This in-turn could force businesses to
13 switch to their alternative fuel or shut-down when such an event may not be
14 necessary. For example, SCE&G may receive an Operational Flow Order
15 ("OFO") from an interstate pipeline limiting gas supplies in the Charleston area
16 but without limitation in other areas. SCE&G, however, is not currently
17 authorized to limit curtailment of gas service to a specific geographical area.
18 Therefore, in order to comply with the OFO, SCE&G would have to issue a
19 curtailment order for an entire curtailment category of customers which would
20 likely include customers outside the Charleston area. In other words, SCE&G
21 may be required to curtail service to customers throughout the State when it needs
22 only to curtail service to customers in the Charleston area. In this example,

1 customers in that curtailment category located in areas other than Charleston
2 would not necessarily need to be curtailed because the OFO encompasses the
3 Charleston area only. Therefore, in order to prevent an entire customer
4 curtailment category from having its gas supply curtailed when it may not be
5 necessary to do so, SCE&G respectfully requests that the Commission allow the
6 Company to modify its Tariff and Service Agreements to permit it to curtail gas
7 service to customers within a geographical area or areas by customer curtailment
8 category. Attached to my testimony as Exhibit No. ____ (RJ-6) is the proposed
9 revision regarding this important change. I respectfully request the Commission
10 approve this change.

11 **Q. PLEASE EXPLAIN SCE&G'S PROPOSAL FOR PENALTIES TO BE**
12 **INCLUDED IN ITS TARIFF FOR CUSTOMERS WHO VIOLATE**
13 **CURTAILMENT ORDERS.**

14 A. Before SCE&G curtails gas service to any of its customers, the Company
15 notifies those customers who will be curtailed and informs them of the
16 circumstances and conditions of the curtailment. While the majority of SCE&G's
17 customers comply with curtailment orders, there are some customers in the past
18 who have simply ignored or refused to comply with SCE&G's curtailment orders
19 and continued to take gas service during a curtailment period. In order to deter
20 customers from violating SCE&G's curtailment orders, the Company respectfully
21 requests that the Commission allow SCE&G to modify its Tariff to allow the
22 Company to assess a penalty against those customers who violate an SCE&G

1 curtailment order. Attached to my testimony as Exhibit No. ____ (RJ-6) are the
2 proposed revisions to SCE&G's Tariff. On behalf of SCE&G, I respectfully
3 request the Commission to approve these proposed tariff revisions.

4 **Q. PLEASE EXPLAIN SCE&G'S PROPOSED REVISION FOR THE SALE**
5 **OF EMERGENCY GAS (SUPPLY RELATED) DURING PERIODS OF**
6 **CURTAILMENT.**

7 A. In Order Nos. 2005-482, 2005-553, and 2005-692, the Commission
8 approved a request by SCE&G to allow its interruptible customers to purchase
9 Emergency Gas (Supply Related) during curtailment periods as long as gas
10 supplies and transportation services were available. These orders permitted
11 SCE&G to make gas available on an interruptible basis and thus allow certain
12 customers who would otherwise be curtailed to continue their normal operations.
13 The Emergency Gas (Supply Related) was priced at:

- 14 a. The actual delivered daily price of the specific source of supply
15 allocated by SCE&G to serve the customer, plus
16 b. The Commission approved maximum contract margin for services to
17 customers falling in the applicable curtailment category, plus
18 c. All other costs and charges related to the specific gas supply used to
19 serve the customer.

20 Further, sales volumes and supply costs related to these gas purchases were
21 not considered in computing SCE&G's weighted average cost of gas or in

1 administering any aspects of SCE&G's Purchased Gas Adjustment ("PGA")
2 process or orders.

3 After the issuance of these orders a significant number of SCE&G's
4 customers purchased Emergency Gas (Supply Related). As a result, these
5 customers were able to continue operating their businesses in spite of natural gas
6 supply disruptions as well as disruptions in the supply of alternative fuels such as
7 propane and fuel oil. Without the assistance of the Commission, this result would
8 not have occurred because there is no provision in SCE&G's tariffs which allows
9 a customer to "buy-through" a curtailment period. In light of the success of this
10 program, SCE&G respectfully requests that the Commission allow SCE&G to
11 modify its Tariff to make permanent those authorizations granted to it by the
12 Commission in Docket No. 2005-260-G. Attached to my testimony as Exhibit No.
13 ____ (RJ-6) are proposed revisions to the Company's existing gas Tariff. These
14 revisions are consistent with the authorizations granted to SCE&G in Commission
15 Order Nos. 2005-482, 2005-553, and 2005-692, and, on behalf of the Company, I
16 respectfully request that they be approved.

1 **II. HEDGING.**

2

3 **Q. PLEASE PROVIDE THE COMMISSION WITH A BRIEF HISTORY OF**
4 **THE NATURAL GAS MARKET.**

5 A. As I testified earlier, SCE&G's gas costs are composed of primarily three
6 different services: (i) the gas commodity itself; (ii) transportation; and (iii) storage.
7 Today, the commodity component of gas cost is determined in an open market that
8 is not subject to price regulation; however, this was not always the case. During
9 the 1980's and 1990's a series of regulatory reforms led to de-regulation of the
10 price of natural gas at the wellhead. These regulatory reforms were initiated in
11 response to a perceived shortage of natural gas in the late 1970s. The perceived
12 shortages were largely due to price cap regulations, which prevented producers
13 from generating adequate profits, which in-turn discouraged new drilling activity.
14 With the removal of price caps, producers renewed their drilling activities and the
15 new natural gas supplies out-paced the demand for gas and created what was
16 referred to in the industry as the "Gas Bubble." Today, natural gas prices remain
17 market driven, but the supply/demand balance is now closer to equilibrium than it
18 was during the 1980's and 1990's. Equilibrium leads to greater price volatility as
19 supply and demand vacillate in the marketplace.

1 **Q. BRIEFLY EXPLAIN THE ENVIRONMENT OF THE NATURAL GAS**
2 **MARKET IN WHICH SCE&G PARTICIPATES AND PURCHASES ITS**
3 **PHYSICAL SUPPLIES OF GAS.**

4 A. The market in which SCE&G competes today for its gas supply is a
5 national market which is dynamic and volatile, and volatility is influenced by
6 many factors. Weather fronts moving into the United States, particularly in the
7 northeast, impact the price of gas purchased for delivery in South Carolina. This
8 price impact on South Carolina delivered gas can be traced in part to the fact that
9 SCE&G purchases a significant quantity of its gas supplies off Transco which
10 serves both the northeast and southeast markets. Since gas supplies available into
11 Transco must serve both markets, weather conditions in one market may impact
12 prices in the other market.

13 A growing national demand for natural gas also contributes to price
14 volatility in the natural gas market. Demand for gas is highly dependent upon the
15 time of year, and changes dramatically from season to season. For example, daily
16 demand for supply by electric power generators in the summer can cause a gas
17 utility to “go to market” on any given day for supply which may be equivalent to
18 five or six times the summer firm load of the local distribution company. In
19 summary, usage varies significantly from summer to winter and also from winter
20 to winter and summer to summer.

1 **Q. IS THERE A MARKET WHICH PRICES NATURAL GAS ON A**
2 **REGULAR BASIS?**

3 A. Yes, in April 1990, the New York Mercantile Exchange (“NYMEX”)
4 began trading natural gas contracts, which provided additional price transparency
5 and improved liquidity in the buying and selling of natural gas in the marketplace
6 for the spot month as well as future delivery months. Price discovery prior to
7 April 1990, and for some time thereafter, had largely taken place by numerous
8 calls between buyers and sellers of natural gas, quoting price and volumes to be
9 bought or sold. When buyers/sellers believed that they possessed sufficient
10 market intelligence concerning prices and volumes, the buying and selling
11 commenced. This activity was particularly intense during the “Bid Week” period,
12 which was a week prior to the beginning of a new calendar month in which buyers
13 purchased baseload requirements for the upcoming month and sellers placed their
14 natural gas production into markets.

15 Today, the Bid Week transactions now occur primarily over a two or three
16 day period as opposed to a week. With the advent of the NYMEX natural gas
17 contract, the NYMEX spot month price quickly became the proxy for price
18 discovery for Bid Week buying/selling, as well as a benchmark for daily purchases
19 for incremental supply needs.

1 **Q. WHAT EFFECT DOES THE VOLATILE NATURE OF THE NATURAL**
2 **GAS MARKET HAVE UPON SCE&G?**

3 A. As a direct result of price volatility, SCE&G can encounter extreme price
4 changes in a relatively short period of time. This translates into unexpected price
5 increases for its customers that may lead to (i) social and economic costs associated
6 with higher utility bills and (ii) alternative fuel use and declining use per customers.

7 **Q. CAN THE IMPACT OF GAS PRICE VOLATILITY BE MITIGATED?**

8 A. Yes. From the outset it is important to understand that SCE&G cannot
9 eliminate or change gas price volatility. This is so because gas price volatility is
10 influenced by factors beyond SCE&G's control. SCE&G can, however, attempt to
11 mitigate the impact of gas price volatility by seeking to reduce its exposure to gas
12 cost risk. While there is no "best" approach to gas cost risk management, the impact
13 of gas price volatility may be mitigated through the implementation of a financial
14 concept known as "hedging."

15 **Q. PLEASE EXPLAIN HEDGING.**

16 A. As used in the natural gas industry, hedging is defined as the practice of
17 initiating a position in the financial market in order to offset the price risk deemed to
18 be associated with the Company's position in the physical market.¹ Stated
19 differently, hedging is a mechanism designed to mitigate the impact of price
20 volatility.

¹ Derivative and Risk Management Glossary, Kase and Company, Inc.

1 **Q. WHAT IS THE PURPOSE FOR IMPLEMENTING A HEDGING**
2 **PROGRAM?**

3 A. The purpose for implementing a hedging program is to help mitigate the
4 impact of extreme price fluctuations – prices that SCE&G, and ultimately its
5 customers, must pay for natural gas. As I stated above, the pricing of natural gas
6 has undergone significant changes, from the long-term, low cost contracts of the
7 industry's early years, to the long-term take-or-pay price contracts of the 1970s
8 and 1980s, to the current practice of acquiring gas supplies largely through short-
9 term contracts at current market, or "spot" prices. The reliance upon gas supplies
10 based upon "spot market" prices sharply undermines the ability to anticipate, plan
11 for and control changes in gas prices. As a result, many gas utilities have
12 undertaken activities designed to minimize the impact of price volatility. Today,
13 the impact of price volatility is most often mitigated through the purchase or sale
14 of financial contracts made available through financial markets such as the
15 NYMEX.

16 **Q. WHAT IS THE GOAL ASSOCIATED WITH A HEDGING PROGRAM?**

17 A. The goal of a hedging program is to mitigate the customer's exposure to the
18 extreme price volatility present in the natural gas market in a cost-effective manner.
19 This goal, however, should not be confused with costs savings. In fact, it should be
20 noted that while a hedging program is designed to protect against exposure to the
21 highest gas prices, it will limit the purchase of gas at the lowest gas prices when gas
22 prices are falling.

1 The objective of a hedging program is to improve cost predictability and to
2 mitigate price risks by reducing one's exposure to unexpected, radical cost changes
3 that may occur over short time periods in the gas spot market. In summary, the goal
4 of a hedging program is to mitigate the impact of price volatility through the
5 purchase of gas financial instruments.

6 **Q. DOES SCE&G CURRENTLY OPERATE A HEDGING PROGRAM?**

7 A. By purchasing its gas supply from SCPC, SCE&G received the benefits
8 associated with SCPC's reasonable and prudent operation of its financial hedging
9 program since its inception in 1995. Thus, there has been no need for SCE&G to
10 implement a hedging program. In Docket No. 2006-257-G, however, the
11 Commission recently authorized SCE&G to implement a hedging program on a
12 temporary basis beginning October 1, 2006, or when SCPC converts to an
13 interstate pipeline, whichever date is later, and ending on the date the Commission
14 issues an order in this docket.

15 **Q. HAS SCE&G STUDIED THE ISSUE OF IMPLEMENTING A HEDGING**
16 **PROGRAM?**

17 A. Yes. SCE&G has carefully examined the desirability of implementing and
18 operating its own natural gas hedging program. As part of this process, SCE&G
19 examined several models available for use in conjunction with a hedging program.
20 Among the models examined were dollar cost averaging, Kase ezHedge, and the
21 Kase HedgeModel_{TM}.

1 **Q. PLEASE EXPLAIN THE CONCEPT OF DOLLAR COST AVERAGING.**

2 A. Dollar cost averaging is a technique designed to mitigate the impact of price
3 volatility through the purchase of financial instruments for set volumes at
4 predetermined regular time intervals regardless of price at the time of execution.
5 This time driven, systematic approach is purely objective with no input from the user
6 after the initial decision of when to hedge and what volumes to hedge has been
7 made.

8 **Q. BRIEFLY DESCRIBE KASE ezHEDGE.**

9 A. Kase ezHedge was developed by Kase and Company, Inc., a nationally
10 recognized risk management advisory firm specializing in the energy markets. Kase
11 ezHedge is a computer based model which provides a method of assessing the
12 forward market for gas by comparing the distribution of historical prices over an
13 optimal observation period. This method provides a statistically based, modified
14 dollar cost averaging approach to hedging natural gas price risk by allowing for
15 the accumulation of hedges (more quickly in a market characterized by lower
16 prices and more slowly in a market characterized by higher prices) and advising
17 the user of timely opportunities to purchase fixed-price hedges. By accumulating
18 hedges more quickly in a downtrend the user may hedge more volumes at a more
19 advantageous price than if it simply purchased fixed-price hedges at even time
20 intervals under straight dollar cost averaging. This in-turn provides the user with
21 the opportunity, in a falling market, to reduce its weighted average market price
22 and allow it to gain greater benefit from lower gas prices.

1 **Q. BRIEFLY DESCRIBE THE Kase HedgeModel_{TM}.**

2 A. Kase HedgeModel_{TM} is also a product developed by Kase and Company.
3 Kase HedgeModel_{TM} is a statistics-based system that defines opportunities to lock in
4 prices (through the purchase of futures contracts) as well as to purchase price
5 protection (in the form of call options). While the model may identify opportunities
6 to implement a hedge, the Company must decide how much of total exposure to
7 hedge and which financial instruments to execute.

8 **Q. OF THE HEDGING MODELS DESCRIBED IN YOUR TESTIMONY, DOES**
9 **SCE&G PREFER ONE MODEL OVER ANOTHER?**

10 A. While there is no optimal model to employ as part of any hedging program
11 which may be implemented, SCE&G believes that Kase ezHedge coupled with an
12 element of dollar cost averaging is the most effective program in mitigating the
13 impact of price volatility. Accordingly, if the Commission orders the
14 implementation of a hedging program, then the Company recommends that the
15 Commission authorize SCE&G to use Kase ezHedge in conjunction with dollar cost
16 averaging as primary tools in its hedging program.

17 **Q. DO OTHER STATE REGULATORY COMMISSIONS ALLOW GAS**
18 **UTILITIES TO HEDGE?**

19 A. Yes. According to a report entitled "Natural Gas – Analysis of Changes in
20 Market Price" published by the United States General Accounting Office in
21 December 2002, forty-two (42) of the forty-eight (48) continental states (over eighty
22 percent (80%)) allow gas utilities to use some type of hedging technique to stabilize

1 gas prices and allow the associated costs (including gains and losses) to be fully
2 recovered.

3 **Q. IF SCE&G IS ORDERED TO IMPLEMENT A HEDGING PROGRAM,**
4 **WOULD IT BE SUBJECT TO ANY OVERSIGHT AND CONTROLS**
5 **WITHIN THE COMPANY?**

6 A. Yes. There are three entities that SCE&G anticipates being primarily
7 involved in the management of any hedging program implemented by the
8 Company: the Gas Supply and Capacity Management Group (“Gas Purchasing
9 Group”), the Risk Compliance Group, and the Risk Management Committee
10 (“RMC”).

11 **Q. BRIEFLY EXPLAIN THE ROLES OF THE GAS PURCHASING GROUP,**
12 **THE RISK COMPLIANCE GROUP, AND THE RMC REGARDING**
13 **HEDGING.**

14 A. If the Commission approves a hedging program for SCE&G, then the Gas
15 Purchasing Group will conduct daily, monthly, and long term hedging transactions
16 for SCE&G. The Gas Purchasing Group is the logical choice for this role because
17 it is in regular contact with many natural gas suppliers and its daily activities occur
18 within the constantly changing environment of the natural gas marketplace. As a
19 result of the changing environment in which both SCE&G and its suppliers
20 operate, opportunities or risks may present themselves, on any given day, to the
21 Gas Purchasing Group. The Gas Purchasing Group would then act by hedging in
22 an effort to mitigate the risk.

1 The Risk Compliance Group also serves a vital and important role in the
2 Company's management of its gas supply costs. The Risk Compliance Group is
3 led by the Risk Management Officer who is a member of the RMC. As such, the
4 Risk Management Officer serves as the point of contact between the Gas
5 Purchasing Group and the RMC. The Risk Compliance Group constantly
6 monitors the natural gas market and evaluates the Company's positions taken in
7 the market, including analyzing the risk related to those positions. Further, the
8 Risk Compliance Group will (i) monitor all transactions entered into on SCE&G's
9 behalf, ensuring that the transactions comply with and abide by the procedures and
10 policies set by the RMC, (ii) independently review the trades daily, and (iii) verify
11 that they comply with the guidelines and requirements of the program.

12 The RMC establishes the goals and objectives of any hedging program
13 approved by the Commission, insures that the goals are executed in a disciplined and
14 consistent manner, and requires audits to ensure compliance with the program. The
15 results of the program will be reported monthly to the RMC, which will monitor the
16 program and ensure that the rules of the program are consistently followed and
17 applied. The RMC will also review and monitor the market-based management
18 tools and/or combination of tools, which may be employed by the Gas Purchasing
19 Group at different times necessary to address price risks.

1 **Q. WILL SCE&G CUSTOMERS BENEFIT FROM THE OPERATION OF A**
2 **HEDGING PROGRAM?**

3 A. SCE&G believes that customers benefit from the operation of a hedging
4 program through the mitigation of the impact of extreme price volatility.

5 **Q. DOES HEDGING IMPACT THE PHYSICAL PURCHASE OF NATURAL**
6 **GAS?**

7 A. No. Hedging functions separate and apart from the process by which SCE&G
8 purchases its physical supply of gas.

9 **Q. IF THE COMMISSION APPROVES IMPLEMENTATION OF A HEDGING**
10 **PROGRAM, THEN WHAT COSTS SHOULD THE COMPANY BE**
11 **ALLOWED TO RECOVER?**

12 A. Hedging is not a cost-free activity and therefore any hedging program
13 approved by the Commission should provide for the full recovery of all costs
14 incurred by the Company in implementing and administering the hedging program.
15 These costs include but are not limited to, all administrative costs, systems costs,
16 brokerage fees, consultant fees, margin requirements and associated carrying costs,
17 and financial instruments purchased. Any additions to or subtractions from the cost
18 of gas would be included in the Company's cost of gas calculations and recovered
19 through the commodity cost of gas.

1 **Q. IF THE HEDGING PROGRAM IS AUTHORIZED, WHAT VOLUMES**
2 **WOULD THE COMPANY HEDGE?**

3 A. If the Commission approves implementation of a hedging program, then
4 SCE&G recommends that the Commission authorize the Company to hedge up to
5 fifty percent (50%) of estimated gas purchases for firm customers.

6 **Q. WOULD SCE&G ALWAYS HEDGE FIFTY PERCENT OF ESTIMATED**
7 **GAS PURCHASES FOR FIRM CUSTOMERS?**

8 A. No. Instances will likely arise in which SCE&G's hedging model may
9 indicate that the level of hedging should be below 50%. Further, the RMC in an
10 exercise of its oversight responsibilities may decide to implement hedges at levels
11 lower than 50% based upon many factors including, but not limited to, market
12 analysis, consultation with the developer of the model, consultation with other
13 market participants, and other publicly and privately available information.

14 **Q. DOES HEDGING NECESSARILY LOWER GAS COSTS WHEN**
15 **COMPARED TO AN UNHEDGED PHYSICAL GAS PORTFOLIO?**

16 A. No. As I testified earlier, the purpose of a hedging program is to mitigate the
17 impact of price volatility; however, a hedging program cannot eliminate gas price
18 risk. For example, after a price is locked-in through the purchase of a financial
19 instrument, future gas costs could fall below the locked-in futures price. In this
20 example, actual spot prices may be lower than the price obtained by hedging.
21 Nevertheless, even in the example, the hedging program successfully accomplished
22 its goal of mitigating the risk of gas prices continuing to rise substantially above the

1 locked-in price. While the financial instrument in our example did not produce a
2 reduction in the cost of gas, the financial instrument provided the desired price
3 protection, but at a cost equivalent to the price of the financial instrument purchased
4 or the difference between the purchase price and the sale price.

5 **Q. WHAT PROCESS DOES SCE&G RECOMMEND TO ENSURE THAT**
6 **THE COMPANY'S GAS PURCHASES AND ITS USE OF RISK**
7 **MANAGEMENT TOOLS IN PURCHASING IS REASONABLE AND**
8 **PRUDENT?**

9 A. Any hedging program approved by the Commission and implemented by
10 SCE&G should be reviewed in SCE&G's annual PGA proceedings for compliance
11 with the requirements of the hedging program approved by the Commission. In
12 future PGA proceedings, proof by the Company that it materially complied with the
13 approved hedging program should be conclusive evidence of prudence.

14 **Q. HAVE YOU PREPARED A PRESENTATION THAT DEPICTS YOUR**
15 **WRITTEN TESTIMONY ON HEDGING?**

16 A. Yes. Attached to my direct testimony as Exhibit No. ____ (RJ-7) are several
17 slides which provide an overview of hedging and compliments my testimony on this
18 subject.

1 **III. COMPANY’S REQUESTS.**

2

3 **Q. WHAT ARE YOU REQUESTING OF THE COMMISSION IN THIS**
4 **PROCEEDING?**

5 A. During the period under review, SCE&G contracted for sufficient supplies of
6 natural gas and provided reliable service to its customers. At no time during the
7 period under review was SCE&G forced to curtail gas service to any of its
8 customers. SCE&G adequately maintained gas, storage, and transportation assets for
9 its system during the period under review at levels that were prudent and reasonably
10 met the reliability and service needs of the system. It is my opinion that SCE&G’s
11 acquisition and management of these assets during the period under review has been
12 prudent and reasonable. Therefore, I respectfully request the Commission find that
13 SCE&G’s cost for gas purchases and asset management were reasonable and prudent
14 for the period under review. I also request that the Commission approve the
15 proposed revisions to SCE&G’s tariffs.

16 With regard to hedging, I respectfully request that the Commission issue an
17 order indicating whether it wishes for SCE&G to implement and operate a hedging
18 program. In the event that the Commission orders SCE&G to implement a hedging
19 program, the Company requests that the Commission approve the recommendations
20 concerning hedging set forth in my testimony.

1 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

2 **A. Yes.**

South Carolina Electric & Gas Company
Existing Firm Transportation Contracts

		Maximum Firm Transportation Dt/Day	Expiration Date
Southern	FSNG349-1 FT	31,005	October 31, 2010
	FSNG349-2 FT	22,684	October 31, 2010
	FSNG349-4 FTNN	80,472	October 31, 2010
	FSNG349-5 FT	26,982	October 31, 2010
		<u>161,143</u>	
Transco	Z1 - Z5	3,209	December 31, 2008
	Z2 - Z5	4,720	December 31, 2008
	Z3 - Z5	3,587	December 31, 2008
	Z3 - Z5	7,360	December 31, 2008
	Station 65 (Sunbelt)	39,606	October 31, 2017
	Station 85 (Sunbelt)	6,170	October 31, 2017
		<u>64,652</u>	
Carolina Gas	Firm Transportation	296,560	October 31, 2009 (1)

Note: (1) The Carolina Gas contract expiration date assumes a contract start date of November 1, 2006.

Note: (2) The Transco and Southern systems interconnect with the Carolina Gas system at a number of metering stations. Supply transported using the firm capacity contracted for the Southern and Transco systems will be, in most instances, delivered to SCE&G's 96 delivery points by Carolina Gas. Thus, firm transportation capacity on the Transco and Southern systems cannot be aggregated with the firm transportation capacity on Carolina Gas to reflect accurately the firm transportation capacity available to deliver gas to SCE&G's customers.

INTERSTATE STORAGE AND LNG STORAGE

I. Interstate Storage

<u>Pipeline</u>	<u>Type</u>	<u>Maximum Storage Quantity</u>	<u>Maximum Daily Withdrawal Quantity</u>	<u>Contract Expiration Date</u>
Southern	CSS	4,908,830	99,121	August 31, 2010
Transco	ESS	18,886	1,877	October 31, 2013
Transco	GSS	26,365	503	March 31, 2013
Transco	WSS	447,938	5,270	October 31, 2017
Transco	LNG	3,585	717	October 31, 2016
Total Transco		496,774	8,367	
Total Interstate		5,405,604	107,488	

II. SCE&G On-System LNG (in mcf)

SCE&G	LNGS	1,880,000	105,000
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Note: All values are stated in Dt, unless otherwise noted





South Carolina Electric & Gas Company
Available Capacity to Serve Firm Sales Service Demand

	Reserve Capacity (Dt)
CGTC Firm Interstate Capacity	296,560
SCE&G Shared CGTC Interstate Capacity	27,000
Segmented CGTC Interstate Capacity	40,000
Total Capacity to Deliver Gas to SCE&G via CGTC	<u>363,560</u>
SCE&G's Peak Design Day Demand (Firm Sales Service to Customers)	366,116
Less: Direct Connect Firm Sales Service Customers	<u>18,850</u>
Net SCE&G Firm Sales Service Customers behind CGTC	<u>347,266</u>
Reserve dts	<u><u>16,294</u></u>
Reserve %	4.69%

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

CURTAILMENT OF SERVICE PROVISIONS

A. Notwithstanding the terms of any service contract or agreement, general terms and conditions, tariff provisions, or rate provisions to the contrary, the Company may, during periods of curtailment, limit curtailment within any given geographic area or areas to those Customers within the area or areas where the need for the curtailment exists. Geographic areas will be defined by the Carolina Gas Transmission Corporation ("CGTC") approved tariff and determined based upon any applicable Operational Flow Order issued by CGTC. While the Company may limit the curtailment to a specific geographic area or areas or may vary the extent of the curtailment among such areas as the needs of the system require, the Company shall nevertheless preserve and enforce the applicable priorities of service categories within each geographic area. This provision (Section A) applies to both firm and interruptible customers.

B. Notwithstanding the terms of any service contract or agreement, general terms and conditions, tariff provisions, or rate provisions to the contrary, if the Company issues a curtailment order and Customer does not comply with the order, the Company will assess, and Customer will be obligated to pay, a penalty to the Company as follows:

- (i) For violation of a curtailment order the Customer shall pay to the Company \$20.00 per dekatherm, plus the highest Daily Gas Index Price¹ for the

¹ "Daily Gas Index Price" means the arithmetic average of:

- (i) Natural Gas Intelligence Daily Gas Price Index, *Louisiana, Southern Natural*; and
(ii) Natural Gas Intelligence Daily Gas Price index, *Louisiana, Transco St. 65*.

1 day of, the gas day preceding, or the gas day following receipt or delivery, all
2 other applicable upstream pipeline charges, and the Customer's base rate mark-
3 up;

4 (ii) In addition to the penalties set forth above in paragraph (B)(i), the
5 Customer shall pay to the Company an amount equal to their pro-rata share of any
6 penalty incurred by the Company for violation of an upstream pipeline's
7 Operational Flow Order ("OFO"), if the Customer's violation of SCE&G's
8 curtailment order results in incremental costs above the penalty assessed in
9 paragraph (B)(i) above.

10 (iii) Penalties will be assessed on each dekatherm of gas received into
11 or taken out of the Company's system when such deliveries or receipts are not in
12 compliance with a curtailment order.

13 (iv) The payment of a penalty under this provision shall under no
14 circumstances be considered as giving Customer any right to violate any
15 curtailment order issued. Further, the receipt of payment by the Company from
16 any customer violating any provision of these Curtailment of Service Provisions
17 shall not be considered as a substitute for or in lieu of any other remedy available
18 to the Company for Customer's failure to comply with the curtailment order.

19 (v) This provision (Section B) applies only to interruptible customers.

If no index for a gas day is published, the price will be computed as the average of the applicable indices on the closest index publication date preceding and the closest index publication date following such gas day.

Effective On and After the First Billing Cycle of November 2006

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

SALES OF APPROVED EMERGENCY GAS (SUPPLY RELATED)

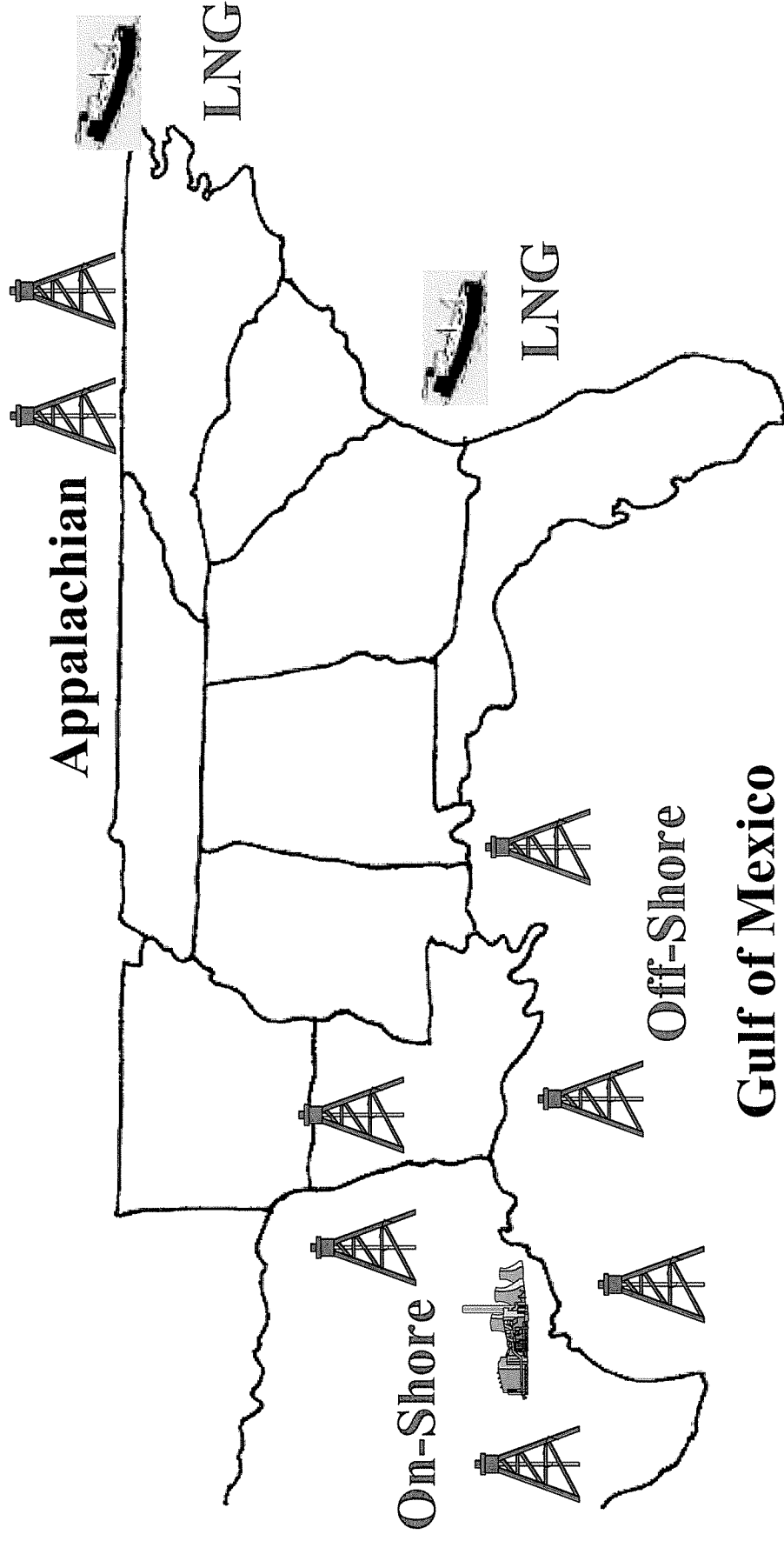
The Company may, in its discretion, offer any interruptible customer subject to curtailment the ability to buy Emergency Gas (Supply Related) during the curtailment on an interruptible basis when gas supplies and transportation are available. Any gas purchases made under this provision shall be priced at the actual delivered price of the specific source of supply allocated by the Company to serve the Customer, plus the approved maximum contract margin for service, plus all other costs and charges related to the specific gas supply used to serve the Customer.

Sales volumes and supply costs related to the gas supplied pursuant to this provision shall not be considered in computing the Company's weighted average cost of gas or in administering any aspects of the Company's Purchased Gas Adjustment ("PGA"), PGA process, or orders related thereto.

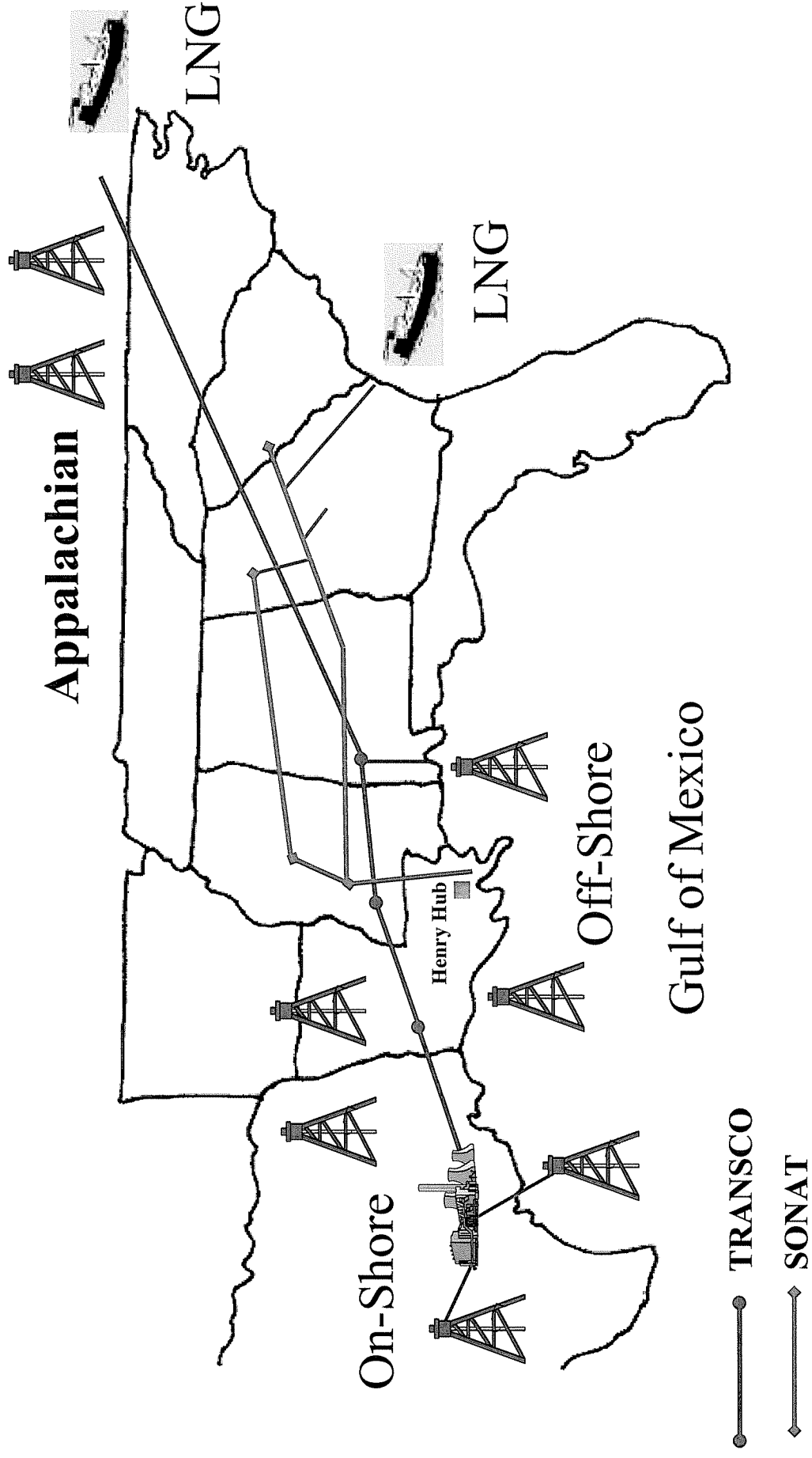
Overview of Natural Gas Hedging

Physical Natural Gas

Natural Gas Production



Natural Gas is Transported on Interstate Pipelines



Gas Measurement

- **Mcf**
 - Thousand cubic feet
 - Volumetric measurement
- **MMBtu**
 - Million British Thermal Units
 - Heating value measurement of gas based on a standard heat value or stored energy
 - One Btu is the amount of heat necessary to raise one pound of water one degree Fahrenheit.
- **Dekatherm**
 - Approximately equal to MMBtu

Market Participants

- **Producer**
 - Own physical gas production
 - Supplier/Seller of natural gas
- **Marketer**
 - Intermediary between suppliers and purchasers
 - Buyer and Seller of natural gas
 - Independent or producer/utility affiliate

Market Participants

- **Local Distribution Company**
 - Distributor of natural gas to residential, commercial and industrial customers
 - Buyer of natural gas
- **End User**
 - Ultimate user of natural gas
 - Buyer of natural gas
 - Industrial, commercial, residential

Physical Gas Purchasing

- **Purchase periods**
 - **Day**
 - **Month**
 - **Season**
 - **1 year or longer (long term)**
- **Pricing**
 - **Index**
 - **Survey of all fixed price or NYMEX related transactions during trading period**
 - **Reported by industry publications**
 - **Daily - Gas Daily**
 - **Monthly - Inside FERC Gas Market Report (most common)**

Physical Gas Purchasing

- **Pricing continued**
 - **NYMEX**
 - Based on monthly NYMEX settlement price
 - Monthly, seasonal and long term
 - Basis – additional pricing component
 - **Fixed**
 - Negotiated fixed price
 - Daily
 - Market price during daily trading period
 - Monthly, seasonal and long term
 - Generally based on current NYMEX price at time of agreement

Physical Gas Purchasing

- **Trading Periods**
 - **Daily**
 - Approximately 8:00 a.m. to 11:00 a.m. ET
 - **Monthly**
 - Between 2 and 5 business days prior to the beginning of each month (“bid week”)
 - Time which First of Month (“FOM”) Index is established
 - **Seasonal and long term**
 - 3-6 months prior to the beginning of the summer or winter season

Physical Gas Purchasing

- **General Utility Purchasing**
 - Majority of volume purchased on a monthly basis
 - During the monthly trading period
 - At the monthly index posted by Inside FERC's Gas Market Report
 - Ratable volume throughout month
 - Independent of any hedging activities

Hedging

Gas Price Volatility

As conditions change over time, gas prices fluctuate depending on those changing conditions. For example, if it is cold and demand is high, prices will increase to reflect the shift in the supply/demand balance. The duration of the price increase will depend on many factors including how long and how severe the cold is.

Gas Price Risk

If this price increase coincides with the monthly trading cycle, prices for the next months gas, or possibly longer, will also be high. Due to the uncertainty of the timing of events and to the changes in conditions, it is often unknown what price will be paid for gas in any given month prior to entering that month. This creates risk for both buyers and sellers.

Hedge - Definition

- **A means of protection or defense**
- **to protect oneself with a counterbalancing transaction**
- **a method of reducing the risk caused by price fluctuation**
- **the initiation of a position in a futures or options market that is intended as a temporary substitute for the purchase or sale of the actual commodity**

Hedging Reasons

- Protect/lock in margin
- Stabilize gas price/price assurance
- Insured against higher/lower prices
- Balanced pricing portfolio
 - Floating/market price
 - Fixed price
- Mitigation of price volatility at “reasonable” cost
- Not intended to beat market!!

Hedging Tools

- **Futures**
- **Options**
- **Swaps**
 - **Fixed price**
 - **Basis**

Futures

- **Definition**
 - **A firm commitment to make or accept delivery of a specified quantity and quality of a commodity during a specific month in the future at a price agreed upon at the time the commitment is made**

Futures

- **Requirements for any futures contract to be successful/sustainable**
 - **Prices of the underlying commodity must be volatile**
 - **Diverse and large number of buyers and sellers**
 - **Underlying physical products must be fungible (interchangeable)**

Futures

- **New York Mercantile Exchange (NYMEX)**
 - World's largest physical commodity futures exchange
 - NYMEX Division – energy related commodities
 - COMEX Division – metal related commodities

Futures

- **What does the exchange offer?**
 - **Matches up both buyers and sellers of individual commodities**
 - **Hedgers**
 - **Underlying industries seeking to avoid risk**
 - **Private and institutional investors**
 - **Assume risk underlying industries seek to avoid in exchange for possible profits**
 - **Hedge funds**
 - **Speculators**

Futures

- **What does the exchange offer?**
 - **Cost-efficient trading and risk management opportunities**
 - **Competitively traded in an anonymous auction**
 - **Pricing widely and instantaneously disseminated**
 - **Performance is supported by a strong financial system backed by members**
 - **Safe, fair and orderly markets protected by rigorous financial standards and surveillance procedures**

Futures – Contract Specs

- **NYMEX Natural Gas Futures**
 - **Volume – 10,000 MMBtu/contract**
 - **Contract term – one month**
 - **72 future months traded**
 - **Physical delivery capability**
 - **Henry Hub - Louisiana**
 - **Less than 1% of all contracts traded go to delivery**
 - **Financial requirements**
 - **Minimal transaction fees**
 - **Margin – performance insurance**
 - **Contract expiration 3 business days prior to the beginning of month**

Options

- **The right, but not the obligation, to purchase or sell natural gas at a particular price in the future**
- **Option premium/expense**
- **Calls – right to purchase at set price**
- **Puts – right to sell at set price**
- **Option expiring 4 business days prior to the beginning of month (one day before futures expiration)**
- **Converts to futures contract at expiration**

Swaps

- **Non-exchange**
- **Independent counterparties**
- **Negotiated contract parameters**
 - **Volume**
 - **Term**
- **Strictly financial**
- **Settled after expiration**
 - **Settled against NYMEX**
 - **Settled against published index prices**
- **No margin requirements**
- **Credit exposure**

Swaps

- **Futures look alike**
 - Acts like a futures
 - Negotiated terms
 - Volume
 - Term
 - Settle against NYMEX
- **Basis**
 - Location pricing differential from the Henry Hub (transportation)
 - Settled against published index price for a specified location